

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Group Art Unit - Unknown

In re

Patent Application of

Leslie A. Holladay

Serial No.: Unknown

Filed: December 10, 2001

Examiner: Unknown

CERTIFICATION UNDER 37 CFR 1.10

I, Leslie Rector,
hereby certify that this correspondence is being deposited with
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20231

Leslie Rector
Signature

12/10/01
Date

"MODIFICATION OF POLYPEPTIDE DRUGS TO
INCREASE ELECTROTRANSPORT FLUX"

SEQUENCE LISTING STATEMENT

Assistant Commissioner for Patents
BOX PATENT APPLICATION
Washington, D.C. 20231

Sir:

The paper copy of the Sequence Listing in this application, is identical to the computer readable copy of the Sequence Listing in U.S. Patent Application Serial No. 08/466,610, filed June 6, 1995. In accordance with 37 CFR 1.821(e), please use the first computer readable form filed in that application as the computer readable form for the instant application.

It is understood that the U.S. Patent and Trademark Office will make the necessary change in application number and filing date for the instant application. A paper copy of the Sequence Listing is included herewith in the specification for the instant application.

Respectfully submitted,

Grady J. Frenchick
Grady J. Frenchick
Reg. No. 29,018

File No. 011293-9028

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FOOTNOTES

SEQUENCE LISTING

(1) GENERAL INFORMATION:

- (i) APPLICANT: Holladay, Leslie A.
- (ii) TITLE OF INVENTION: MODIFICATION OF POLYPEPTIDE DRUGS TO INCREASE ELECTROTRANSPORT FLUX
- (iii) NUMBER OF SEQUENCES: 10
- (iv) CORRESPONDENCE ADDRESS:
- (A) ADDRESSEE: Stroud, Stroud, Willink, Thompson & Howard
 - (B) STREET: 25 West Main Street
 - (C) CITY: Madison
 - (D) STATE: WI
 - (E) COUNTRY: USA
 - (F) ZIP: 53701-2236
- (v) COMPUTER READABLE FORM:
- (A) MEDIUM TYPE: Floppy disk
 - (B) COMPUTER: IBM PC compatible
 - (C) OPERATING SYSTEM: PC-DOS/MS-DOS
 - (D) SOFTWARE: PatentIn Release #1.0, Version #1.25
- (vi) CURRENT APPLICATION DATA:
- (A) APPLICATION NUMBER:
 - (B) FILING DATE:
 - (C) CLASSIFICATION:
- (viii) ATTORNEY/AGENT INFORMATION:
- (A) NAME: Frenchick, Grady J.
 - (B) REGISTRATION NUMBER: 29,018
 - (C) REFERENCE/DOCKET NUMBER: 8734.28
- (ix) TELECOMMUNICATION INFORMATION:
- (A) TELEPHONE: 608-257-2281
 - (B) TELEFAX: 608-257-7643

(2) INFORMATION FOR SEQ ID NO:1:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 174 amino acids
 - (B) TYPE: amino acid
 - (D) TOPOLOGY: linear
- (ix) FEATURE:
- (A) NAME/KEY: Peptide
 - (B) LOCATION: 1..174
 - (D) OTHER INFORMATION: /note= "granulocyte-colony stimulating factor"

1001640 1001640

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

Thr	Pro	Leu	Gly	Pro	Ala	Ser	Ser	Leu	Pro	Gln	Ser	Phe	Leu	Leu	Lys	1	5	10	15
Cys	Leu	Glu	Gln	Val	Arg	Lys	Ile	Gln	Gly	Asp	Gly	Ala	Ala	Leu	Gln	20	25	30	
Glu	Lys	Leu	Cys	Ala	Thr	Tyr	Lys	Leu	Cys	His	Pro	Glu	Glu	Leu	Val	35	40	45	
Leu	Leu	Gly	His	Ser	Leu	Gly	Ile	Pro	Trp	Ala	Pro	Leu	Ser	Ser	Cys	50	55	60	
Pro	Ser	Gln	Ala	Leu	Gln	Leu	Ala	Gly	Cys	Leu	Ser	Gln	Leu	His	Ser	65	70	75	80
Gly	Leu	Phe	Leu	Tyr	Gln	Gly	Leu	Leu	Gln	Ala	Leu	Glu	Gly	Ile	Ser	85	90	95	
Pro	Glu	Leu	Gly	Pro	Thr	Leu	Asp	Thr	Leu	Gln	Leu	Asp	Val	Ala	Asp	100	105	110	
Phe	Ala	Thr	Thr	Ile	Trp	Gln	Gln	Met	Glu	Glu	Leu	Gly	Met	Ala	Pro	115	120	125	
Ala	Leu	Gln	Pro	Thr	Gln	Gly	Ala	Met	Pro	Ala	Phe	Ala	Ser	Ala	Phe	130	135	140	
Gln	Arg	Arg	Ala	Gly	Gly	Val	Leu	Val	Ala	Ser	His	Leu	Gln	Ser	Phe	145	150	155	160
Leu	Glu	Val	Ser	Tyr	Arg	Val	Leu	Arg	His	Leu	Ala	Gln	Pro	165	170				

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 174 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 1..174
- (D) OTHER INFORMATION: /note= "modified granulocyte-colony stimulating factor"

FOOTNOTES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

Thr	Pro	Leu	Gly	Pro	Ala	Ser	Ser	Leu	Pro	His	Ser	Phe	Leu	Leu	Lys	1	5	10	15
Cys	Leu	Glu	Gln	Val	Arg	Lys	Ile	Gln	Gly	Asp	Gly	Ala	Ala	Leu	Gln	20	25	30	
Glu	Lys	Leu	Cys	Ala	Thr	Tyr	Lys	Leu	Cys	His	Pro	Glu	Glu	Leu	Val	35	40	45	
Leu	Leu	Gly	His	Ser	Leu	Gly	Ile	Pro	Trp	Ala	Pro	Leu	Ser	Ser	Cys	50	55	60	
Pro	Ser	Gln	Ala	Leu	Gln	Leu	Ala	Gly	Cys	Leu	Ser	Gln	Leu	His	Ser	65	70	75	
Gly	Leu	Phe	Leu	Tyr	Gln	Gly	Leu	Leu	Gln	Ala	Leu	Glu	Gly	Ile	Ser	85	90	95	
Pro	Glu	Leu	Gly	Pro	Thr	Leu	Asp	Thr	Leu	Gln	Leu	Asp	Val	Ala	Asp	100	105	110	
Phe	Ala	Thr	Thr	Ile	Trp	Gln	Gln	Met	Glu	Glu	Leu	Gly	Met	Ala	Pro	115	120	125	
Ala	Leu	Gln	Pro	Thr	Gln	Gly	Ala	Met	Pro	Ala	Phe	Ala	Ser	Ala	Phe	130	135	140	
Gln	Arg	Arg	Ala	Gly	Gly	Val	Leu	Val	Ala	Ser	His	Leu	Gln	Ser	Phe	145	150	155	
Leu	Glu	Val	Ser	Tyr	Arg	Val	Leu	Arg	His	Leu	Ala	Gln	Pro	165	170				

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 174 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 1..174
- (D) OTHER INFORMATION: /note= "modified granulocyte-colony stimulating factor"

FOOTNOTES

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

Thr	Pro	Leu	Gly	Pro	Ala	Ser	Ser	Leu	Pro	His	Ser	Phe	Leu	Leu	Lys
1				5					10					15	
Cys	Leu	Glu	His	Val	Arg	Lys	Ile	Gln	Gly	Asp	Gly	Ala	Ala	Leu	Gln
			20					25					30		
Glu	Lys	Leu	Cys	Ala	Thr	Tyr	Lys	Leu	Cys	His	Pro	Glu	Glu	Leu	Val
		35					40					45			
Leu	Leu	Gly	His	Ser	Leu	Gly	Ile	Pro	Trp	Ala	Pro	Leu	Ser	Ser	Cys
	50					55					60				
Pro	Ser	Gln	Ala	Leu	Gln	Leu	Ala	Gly	Cys	Leu	Ser	Gln	Leu	His	Ser
65					70				75						80
Gly	Leu	Phe	Leu	Tyr	Gln	Gly	Leu	Leu	Gln	Ala	Leu	Glu	Gly	Ile	Ser
				85					90					95	
Pro	Glu	Leu	Gly	Pro	Thr	Leu	Asp	Thr	Leu	Gln	Leu	Asp	Val	Ala	Asp
			100					105					110		
Phe	Ala	Thr	Thr	Ile	Trp	Gln	Gln	Met	Glu	Glu	Leu	Gly	Met	Ala	Pro
		115				120						125			
Ala	Leu	Gln	Pro	Thr	Gln	Gly	Ala	Met	Pro	Ala	Phe	Ala	Ser	Ala	Phe
	130					135					140				
Gln	Arg	Arg	Ala	Gly	Gly	Val	Leu	Val	Ala	Ser	His	Leu	Gln	Ser	Phe
145					150					155					160
Leu	Glu	Val	Ser	Tyr	Arg	Val	Leu	Arg	His	Leu	Ala	Gln	Pro		
				165				170							

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 174 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 1..174
- (D) OTHER INFORMATION: /note= "granulocyte-colony stimulating factor"

40036403.121001

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Thr Pro Leu Gly Pro Ala Ser Ser Leu Pro Gln Ser Phe Leu Leu Lys
1 5 10 15
Cys Leu Glu Gln Val Arg Lys Ile Gln Gly Asp Gly Ala Ala Leu Gln
20 25 30
Glu Lys Leu Cys Ala Thr Tyr Lys Leu Cys His Pro Glu Glu Leu Val
35 40 45
Leu Leu Gly His Ser Leu Gly Ile Pro Trp Ala Pro Leu Ser Ser Cys
50 55 60
Pro Ser Gln Ala Leu Gln Leu Ala Gly Cys Leu Ser Gln Leu His Ser
65 70 75 80
Gly Leu Phe Leu Tyr Gln Gly Leu Leu Gln Ala Leu Glu Gly Ile Ser
85 90 95
Pro Glu Leu Gly Pro Thr Leu Asp Thr Leu His Leu Asp Val Ala Asp
100 105 110
Phe Ala Thr Thr Ile Trp His His Met Glu Glu Leu Gly Met Ala Pro
115 120 125
Ala Leu His Pro Thr His Gly Ala Met Pro Ala Phe Ala Ser Ala Phe
130 135 140
His Arg Arg Ala Gly Gly Val Leu Val Ala Ser His Leu His Ser Phe
145 150 155 160
Leu Glu Val Ser Tyr Arg Val Leu Arg His Leu Ala His Pro
165 170

(2) INFORMATION FOR SEQ ID NO:5:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 34 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

- (ix) FEATURE:
(A) NAME/KEY: Peptide
(B) LOCATION: 1..34
(D) OTHER INFORMATION: /note= "parathyroid hormone"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Ser Val Ser Glu Ile Gln Leu Met His Asn Leu Gly Lys His Leu Asn
1 5 10 15

10016403 121001

Ser Met Glu Arg Val Glu Trp Leu Arg Lys Lys Leu Gln Asp Val His
20 25 30

Asn Phe

(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 34 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 1..34
- (D) OTHER INFORMATION: /note= "modified parathyroid hormone"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

Ser Val Ser Glu Ile His Leu Met His Asn Leu Gly Lys His Leu Asn
1 5 10 15

Ser Met Glu Arg Val Glu Trp Leu Arg Lys Lys Leu Gln Asp Val His
20 25 30

Asn Phe

(2) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 34 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 1..34
- (D) OTHER INFORMATION: /note= "modified parathyroid hormone"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

Ser Val Ser Glu Ile Gln Leu Met His Asn Leu Gly Lys His Leu Asn
1 5 10 15

Ser Met Glu Arg Val Glu Trp Leu Arg Lys Lys Leu His Asp Val His
20 25 30

Asn Phe

FOOTNOTES

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 44 amino acids
 (B) TYPE: amino acid
 (D) TOPOLOGY: linear

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( A ) NAME/KEY: Peptide
( B ) LOCATION: 1..44
( D ) OTHER INFORMATION: /note= "human growth hormone
                           releasing hormone"

```

(A) NAME/KEY: Binding-site
(B) LOCATION: 44
(D) OTHER INFORMATION: /note= "carboxy terminal amide"

Tyr Ala Asp Ala Ile Phe Thr Asn Ser Tyr Arg Lys Val Leu Gly Gln
1 5 10 15
Leu Ser Ala Arg Lys Leu Leu Gln Asp Ile Met Ser Arg Gln Gln Gly
20 25 30
Glu Ser Asn Gln Glu Arg Gly Ala Arg Ala Arg Leu
35 40

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 44 amino acids
 (B) TYPE: amino acid
 (D) TOPOLOGY: linear

(A) NAME/KEY: Peptide
(B) LOCATION: 1..44
(D) OTHER INFORMATION: /note= "modified hormone growth hormone releasing hormone"

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(A) NAME/KEY: Binding-site
(B) LOCATION: 44
(D) OTHER INFORMATION: /note= "carboxy terminal amide"

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

Tyr Ala Asp Ala Ile Phe Thr Asn Ser Tyr Arg Lys Val Leu Gly Gln
1 5 10 15
Leu Ser Ala Arg Lys Leu Leu Gln Asp Ile Met Ser Arg Gln His Gly
20 25 30
Glu Ser Asn His Glu Arg Gly Ala Arg Ala Arg Leu
35 40

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 44 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 1..44
- (D) OTHER INFORMATION: /note= "modified human growth hormone release hormone"

(ix) FEATURE:

- (A) NAME/KEY: Binding-site
- (B) LOCATION: 44
- (D) OTHER INFORMATION: /note= "carboxy terminal amide"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

Tyr Ala Asp Ala Ile Phe Thr Asn Ser Tyr Arg Lys Val Leu Gly His
1 5 10 15
Leu Ser Ala Arg Lys Leu Leu His Asp Ile Met Ser Arg His His Gly
20 25 30
Glu Ser Asn Gln Glu Arg Gly Ala Arg Ala Arg Leu
35 40